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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/993,516 12/18/97 POLK

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EXAMINER

LEE, D

ART UNIT

PAPER NUMBER

1732

DATE MAILED:

05/25/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/993,516**

Applicant(s)

**Polk Jr.**

Examiner

**Dae Lee**

Group Art Unit  
**1732**



☒ Responsive to communication(s) filed on Mar 2, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-4 and 6-13 is/are pending in the application.

Of the above, claim(s) 8-13 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-4, 6, and 7 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Election/Restriction*

1. Applicant's election of group I, claims 1-4 and 6-7 in Paper No. 3 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 8-13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected invention. Election was made **without** traverse in Paper No. 3.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention as stated in the previous office action. Applicant is cautioned to respond to this rejection in response to this action.

Claim 1 recites the limitations "the extrusion" in line 3 and "the thickness" in line 6. There is insufficient antecedent basis for these limitations in the claim

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***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura *et al* (USPN 5500170) in view of Knopf (USPN 4517145). Okumura *et al* teach the basic claimed method of molding a thermoplastic, the steps of the method comprising:

- a. Selecting an extrusion die with adjustable die gate members (col 7, ln 35-48);
- b. Heating a thermoplastic material to a melted condition (fluid) (col 1, ln 10-14; col 3, ln 34);
- c. Adjusting the extrusion die for varying the thickness of the extruded material (col 3, ln 36-38);
- d. Extruding a block (slab) of composite (thermoplastic) material through the die (col 3, ln 23-24);
- e. Cutting (trimming) the block to a desired width, length and thickness (predetermined size) (col 8, ln 18-25);
- f. Placing the block in a compression (thermoforming) mold (col 8, ln 36-41);
- g. Compression molding the block (col 3, ln 34-35).

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Okumura *et al* teach the basic claimed method of molding a thermoplastic as discussed above but does not teach using a die with a plurality of gates. However, Knopf does teach a extrusion die head with a plurality of inner flow surfaces (die gates) which can be separately adjustable to thereby vary the thickness across the thermoplastic material being extruded (col 3, ln 14-18; col 5, ln 59-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Knopf with the thermoplastic molding process of Okumura *et al* in order to extrude a material with a varying thickness throughout the slab's width to thereby conform to the thermoforming mold.

7. Claims 2-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura *et al* (USPN 5500170) in view of Knopf (USPN 4517145) and further in view of Murayama *et al* (USPN 4776782). The above discussions of Okumura *et al* and Knopf apply herein.

Okumura *et al* teach the basic claimed method of molding a thermoplastic as discussed above but does not teach having a movable mold which can be rotated on a table. However, Murayama *et al* do teach moving the female compression mold (thermoforming mold) having a molded part therein while the mold is cooled (col 9, ln 39-46). Murayama *et al* also teach moving a second female mold in position for receiving the next trimmed extruded material (thermoplastic slab) (col 11, ln 45-62). Murayama also teach rotating the female molds on a table to be in a position to receive a trimmed extruded material (col 11, ln 45-62; abstract, ln 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

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invention to use the teachings of Murayama *et al* with the thermoplastic molding method of Okumura *et al* in order to increase the production of the thermoformed articles.

Okumura *et al* do teach using a drive motor to adjust the die gate, but does not teach the gate being moved with a electric stepper motor. Knopf does teach controlling a gap but also does not teach an electric stepper motor. However, a electric stepper motor is well known in the art and it would have been obvious to one of ordinary skill in the art to use the well known electric stepper motor with the extrusion die of Knopf in order to more precisely control the thickness of the extruded material.

#### ***Response to Arguments***

8. Applicant's arguments filed March 2, 1999 have been fully considered but they are not persuasive.

a. Applicant has argued that the design of Okumura *et al* could not allow gates to be side-by-side to allow for gas web thickness control. Also, Applicant has argued that Okumura *et al* do not teach a plurality of gates. However, the rejection was on grounds of Okumura *et al* in view of Knopf. Therefore, a person with ordinary skill in the art would have been able to modify and would have modified the extrusion die member of Okumura *et al* with the extrusion die of Knopf in order to extrude a preform of varying thickness with a extrusion die having a plurality of die gates as discussed in the above rejection.

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b. Applicant has also argued that the Okumura *et al* also do not teach how the plastic form gets to the mold in regards to instant claim 1. A portion of instant claim 1 reads as follows: “placing said trimmed slab of heated thermoplastic material into a thermoforming mold”. A section of Okumura *et al* reads as follows: “The melted composite discharged in a predetermined amount is cut by a cutter 104 provided at the opening 107, and a melted composite A4 thus obtained is supplied to (placed) between an upper mold 106a and a lower mold 106b of the compression molding machine 105.”. Therefore, Okumura *et al* is clearly readable on instant claim 1 as written. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Okumura *et al* if claim 1 is amended to recite a method of placing the heated thermoplastic material into a thermoforming mold since methods of placing a preform onto a mold are generally well known in the art (see the art of record).

c. Applicant has also argued that the art of record does not teach the use of a moveable carriage. This argument is not persuasive since the Applicant does not claim a moveable carriage in which the speed and position is choreographed under the extrusion die. However, even if the Applicant claims this limitation, this would not be patentable since a moveable carriage is well known in the art of thermoforming as can be seen by Copsey *et al* (USPN 5507999).

d. Applicant also argued that Knopf only teaches a plurality of die gates for even flow of plastic and not an uneven flow of plastic. However, the plurality of die gates can be used to vary the thickness across the preform. Okumura *et al* do teach varying the thickness as seen in column 3, lines 36-41. Therefore, it would have been obvious to vary the thickness using a

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plurality of die gates instead of a single adjustable member varying the thickness of the extruded preform. Nevertheless, a extrusion head for varying the thickness across the preform is well known in the art as can be seen by Harada *et al* (USPN 4470790).

e. Applicant has also argued that the Reilly patent teaches an apparatus for producing a multiaxial containers and does not deal with thermoforming. However, Reilly *et al* was not used in the previous action as one of the primary or secondary references. The Reilly reference was cited as an art of record and not relied upon to teach a blow molding (thermoforming) operation in which a preform is spun on a carriage into to be placed in a mold for molding. Reilly reference does deal with thermoforming since blow molding is a type of thermoforming.

f. Applicant has argued that it would be unobvious to combine Okumura *et al*, Murayama *et al*, and Knopf since it would call for a complete redesign of the machines. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Okumura *et al* teach extruding a variable thickness slab. However, a plurality of die gates is needed to produce a variable thickness through the width of the slab. Therefore, it would have been obvious to use the extrusion head of Knopf to vary the thickness throughout the width as



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also taught by Harada *et al.* Also, Okumura *et al* do not show how the extruded slab is placed under the thermoforming mold as noted by the Applicant. However, Murayama *et al* do teach a method of transporting a loaded plastic material to a thermofoming mold. It would have been within the ordinary skill of the art to make required modifications in the apparatus of the cited references to affect the obvious combinations of expedients as discussed above. Therefore, these reasons provide motivation for combining these references.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Copsey *et al* (USPN 5507999) teach a method of thermoforming using a moveable carriage.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

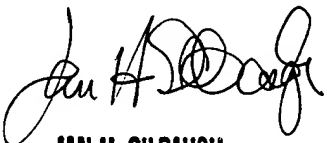
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dae Young Lee whose telephone number is (703) 305-0393. The examiner can normally be reached on Monday-Friday from 8:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H. Silbaugh, can be reached on (703) 308-3829. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

DYL

May 21, 1999

  
JAN H. SILBAUGH  
SUPERVISORY PATENT EXAMINER  
ART UNIT ~~1732~~ 1732  
05/21/99